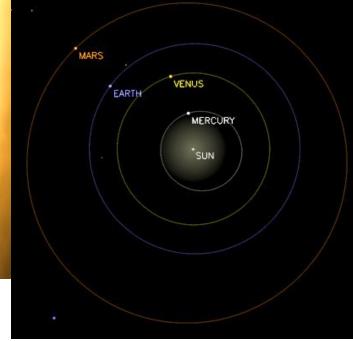


Planet	Average Temperature				
Mercury	Range from -160 °C to +500 °C				
Venus	477 °C				
Earth	13 °C				
Mars	-53 °C				



Planet	Distance from Sun				
Mercury	57,910,000 km				
Venus	108 <b>,</b> 200 <b>,</b> 000 km				
Earth	149,600,000 km				
Mars	227,940,000 km				

## Some Atmospheric Data

Planet	Distance from Sun (km)	Day (h:m)	Atmosphere					
			Pressure (atm)	Mass (kg)	$N_2$	$\mathbf{O}_2$	Ar	$CO_2$
Mercury	5.791 e7	1407:6	none (10 <sup>-15</sup> )					
Venus	1.082 E8	5833:12	90	4.8 E20	1.9%	trace	0.1%	98%
Earth	1.496 E8	23:56	1	5.15 E18	78%	21%	1%	0.03%
Mars	2.2794 е8	24:38	0.0064	2.5 E16	2.7%	0.13%	2%	95%



## Earth vs Mercury



- 1. Mercury's atmosphere is very week and, hence, has a very pronounced temperature variation.
- 2. No molecules in the atmosphere to keep temperature constant.
- 3. In planets with no atmosphere, all sunlight reaches the surface.
- 4. The temperature rises very quickly during the day but drops as quickly at night.



## Earth vs Venus



- 1. Venus' albedo: 65% vs Earth's albedo: 30%
- 2. Of the 1/3 sunlight absorbed, only 1% can escape into space.
- 3. Venus' atmosphere is about 100 times bigger than Earth's and has 300,000 times more  $CO_2$ .
- 4. Even though Venus' clouds consist mainly of H<sub>2</sub>SO<sub>4</sub>, they have enough water to help with the effect.

<sup>\*</sup> Albedo: fraction of sunlight that is reflected from an object



## Earth vs Mars



- 1. Mars is the farthest from the Sun.
- 2. Mars' atmosphere is about 1% the size of Earth's.
- 3. Most of Mars atmosphere is CO<sub>2</sub>, but it has no other greenhouse gases.
- 4. For a thin atmosphere, it is harder to keep temperature constant.